

# **School District of South Milwaukee Butler's Gartersnake Conservation Plan**

Prepared by:

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## **1. Background**

The School District of South Milwaukee (SDSM) has an expanded school campus development underway along Oak Creek Parkway in South Milwaukee, Wisconsin. The SDSM project site includes the Milwaukee County owned property, the SDSM property east of the existing school and parking lot, and the recently acquired Falk property (Figure 1). The construction proposal has been reviewed by the Wisconsin Department of Natural Resources (WDNR), and the Butler's Gartersnake (*Thamnophis butleri*) was discovered on site during a field inspection. The Butler's Gartersnake is listed as a Threatened Species in Wisconsin and suffers from a variety of problems, most notably an extensive and ongoing loss of habitat within its limited range in southeastern Wisconsin, and potential hybridization with the closely related Plains Gartersnake (*Thamnophis radix*). Consequently, WDNR has recommended setting aside an approximately 4.6 acre area where snakes were found, in the northeastern corner of the proposed development, as a snake conservation preserve (Figure 2), and as a condition of issuing a Non-Jeopardy Assessment and Incidental Take Authorization. This proposal puts forth a Conservation Plan for Butler's Gartersnakes within this parcel, herein called the "Northeast Preserve," addressing construction impacts, snake monitoring, and habitat restoration and management.

## **2. Northeast Preserve Existing Conditions**

The Northeast Preserve includes a basin created by gravel mining and subsequent abandonment. The mining ceased operations sometime in the early 1970's based on the age of invading cottonwood trees, and aerial photographs. As a result, the gravel-mined basin portion of the site contains essentially no topsoils, and minimal fine substrates, with gravel, cobbles and sand prevailing in side-slopes, and the basin bottom. The basin portions of the site are surrounded on the east, north and west sides by abrupt steep grades to elevated un-mined uplands to the north and west, steep mine spoil piles along the south perimeter, and a steep railroad grade on the east boundary. The surrounding slopes occur at 1.5:1 and 1:1 grades, or steeper conditions. Slopes are in most locations sparsely vegetated, or bare soil. In some locations, demolition debris is included and protrudes from the banks. Vegetation on the elevated railroad berm on the east side of the preserve is mostly box elder. At the top of the west side slope is a

closed canopy deciduous forest remnant. The top of the north slope is in old field habitat with scattered trees and shrubs, which abuts the mowed border of an asphalt foot path paralleling Oak Creek Parkway.

Because of the mining activities this site is a highly altered landform with abrupt transitions from elevated uplands to the floor of the former pit, now occupied by a seasonal wetland. Old automobile tires, scrap steel, fly-dumped landscape wastes including tree stumps and root masses, piles of logs, and other materials have been deposited prior to SDSM's recent purchase of the property. Currently, the wetland in the preserve has standing water when ground water levels are elevated and during very rare lower frequency storms. The water level appears to fluctuate commensurate with ground water levels. Minimal surface water runoff, primarily from the surrounding upland slopes, enter the site, which is primarily influenced by ground water fluctuations in the underlying gravel and sand seams. Since August 2002, the wetland basin has been completely dry to locally saturated, but not inundated. The wetland depth may vary from a few inches to perhaps 3 feet over a normal season. An average depth is believed to approximate 18 inches.

Emergent vegetation around the wetland basin in the Northeast Preserve is dominated by cattails (*Typha* spp.), giant reed grass (*Phragmites communis*), purple loosestrife (*Lythrum salicaria*), scattered sedges and reeds (*Scirpus* spp., *Juncus* spp), and occasional asters including marsh aster (*Aster simplex*) and New England aster (*Aster novae-angliae*). Sandbar willows (*Salix interior*) and cottonwood saplings (*Populus deltoids*) have invaded into most of the margins of the wetland, landward of the fringing cattails. The shorelines of the wetland are stable, and are found within the cattail growth zone ringing the wetland. Some annual plant species including sticktights (*Bidens vulgata* and *B. frondosa*) invaded the saturated substrates during the 2002 drought. The heavily compacted (from mining activities) sand and gravel substrate present restricts plant invasion to margins of the wetland that have been subjected to 30 years or more of winter freeze-thaw activity, thus allowing for root penetration and root zone oxygenation.

### **3. Construction Phase Proposal**

During all construction phases SDSM will avoid construction, stormwater management, and restoration actions in the Northeast Preserve, except as may be approved in a forthcoming restoration plan. Construction outside of known Butler's Gartersnake habitat began in November, 2002, with snakes already in their winter dens and inactive.

#### **3.1 Disturbance Barriers (Figure 3)**

The Northeast Preserve will be protected by April 1, 2003, from construction disturbance, by installation of a chain link fence along the southern and western borders. The chain link fencing along the western border of the preserve adjacent to the wetland basin will be installed by hand just above the ordinary high water mark. No mechanical operated equipment will be used for this portion of the fence in order to avoid any disturbance to the wetland basin. SDSM will also install a snake exclusion barrier (silt fence trenched into the ground 4-6") around the Northeast Preserve abutting the construction zones by March 22, 2003, to prevent snake movement into the construction zone. The snake exclusion barrier will be inside (preserve side)

of the chain link fence.

### 3.2 Post-construction Seeding

After construction is completed, the disturbed areas abutting the Northeast Preserve that are to remain in green space will be planted and straw mulched. Upland areas will be planted with native grasses and forbs in a ratio appropriate for the Butler's Gartersnake, to maintain open, primarily non-woody vegetation cover, and wetland vegetation in the created and restored wetlands.

### 3.3 Construction Oversight

SDSM will educate all construction staff, teachers and students regarding requirements for protecting the Butler's Gartersnake and the Northeast Preserve. SDSM has prepared a poster display and handout on the snake and presented this to construction staff and teachers. Construction foreman and operators will be contacted again the first week of April, 2003, to ensure that they remain sensitive to and aware of the environmental rules for construction operations. Since construction began, all construction staff have been educated weekly on the environmental sensitivity of habitat areas that are to be protected and enhanced in the development plan. Construction operations will be monitored daily between April 1 and November 10, 2003, to ensure that sensitive areas are protected. Debris and construction site garbage will not be allowed to be disposed of in the Northeast Preserve.

### 3.4 Hydrology

In order to minimize construction impacts to the Northeast Preserve, the construction will be designed to match hydraulic performance after the development is in place, with pre-development conditions. The existing conditions (and the design) directs only peaks of 100 year or higher flood events into the Northeast Preserve. This water is expected to remain until ground water levels drop, or until surface waters can outlet to Oak Creek. Where other wetlands are being restored, the durations after various storm events are designed to be short duration (<30 hours for 2, 10 and 100 year events). Permanent open water is designed into the stormwater detention basins and wetlands immediately north of the school at the intersection of Oak Creek Parkway and 15th Street. Wetlands located to the south of the Northeast Preserve are designed to de-water shortly after events, to either a pool, or a shallowly inundated condition, and during the heat of the summer may dry to saturated conditions. The stormwater management plan for the area around the Northeast Preserve directs only rare event surface waters from a very small part of the developed stadium area to the Northeast Preserve. It is anticipated that the Northeast Preserve will primarily receive water through direct precipitation, and through ground water surcharges, which currently are responsible for the maintenance of the hydrology of this wetland complex.

## 4. Baseline Data Collection Proposal

A baseline data collection proposal for Butler's Gartersnakes and earthworms (snake prey) within the Northeast Preserve will be produced by April 1, 2003, designed to implement a cover object sampling grid with a goal of determining regions of snake preference and avoidance. These baseline data will then be used to complete a management and restoration plan for the Northeast Preserve. The sampling grid established will also be used for subsequent snake monitoring. Earthworm abundance will be evaluated to assess the available prey base within the

preserve. Most likely the snake sampling will occur in May and June via cover object sampling, and the earthworm evaluation will be conducted in September via liquid extraction sampling.

## **5. Habitat Restoration and Management Proposal**

No vegetative cutting, planting, or earth moving activity of any kind, is proposed in the Northeast Preserve until after baseline data are collected in 2003. It is recommended that the Northeast Preserve be passively studied in 2003, to collect data necessary to produce a restoration plan tailored specifically to preserving any existing snakes within the preserve. Snake distribution and abundance within the preserve will be evaluated before a restoration plan is finalized, and the plan will be phased to enhance areas avoided by snakes first, wait for snakes to colonize restored areas, and then move into remaining areas. Since snakes within the Northeast Preserve will form the core of the preserve snake colony, it will be important to proceed with restoration carefully, and minimize potential mortality caused by restoration activities.

SDSM will retain the services of a herpetologist with proven Butler's Gartersnake natural history expertise to prepare a management and restoration plan for the Northeast Preserve, subject to WDNR approval, in 2003, based on baseline data collection results. The plan will most likely include control of invasive species, native vegetation plantings, earthworm enhancements, long term maintenance commitments, removal of the chain-link fence, and re-sloping of at least the western slope of the Northeast Preserve basin. Also considered will be alterations to a portion of the steeply eroding south facing slope to produce a more gradual vegetated slope, and construction of a snake den. Should such construction be proposed, it will most likely be proposed for late summer, 2003, while construction equipment and earth are still on site. Any proposed construction that could result in the taking of Butler's Gartersnakes within the Northeast Preserve will be avoided or minimized by consulting with the WDNR prior to construction. Minimization could involve altering the timing of construction or by temporarily moving snakes to areas within the preserve that will not be disturbed by habitat restoration activities. The herpetologist retained for the development of the habitat management and restoration plan must also be retained during the restoration phase to insure that the plan is implemented as written and must contact the WDNR if any problems arise that will require plan modification. Finally, encouragement of management for enhancing snake habitat on nearby county owned lands (Oak Creek Parkway) will be considered.

## **6. Monitoring**

### **6.1 Snake Monitoring**

A Butler's Gartersnake monitoring program will be initiated post-construction, to evaluate Butler's Gartersnake response to ongoing habitat restoration measures. The snake monitoring plan will be written in 2004, after baseline snake population data are evaluated, and a restoration plan is accepted. The monitoring plan will be subject to WDNR approval, and will most likely entail repeating the baseline data collection on a periodic schedule.

### **6.2 Restoration Monitoring**

A vegetative monitoring program will be initiated post-construction, to evaluate vegetative response to habitat restoration goals. The vegetative monitoring plan will be included

with the Restoration Plan to be developed in 2003, and subject to WDNR approval.

## **7. Educational Programming**

SDSM has an interest in developing educational programs to involve professionally supervised students and staff in stewardship of the Northeast Preserve. Educational curricula are anticipated to be developed in 2003, and proposed activities involving the protected Butler's Gartersnakes or Bluestem Goldenrods (*Solidago caesia*) will be subject to WDNR approval. SDSM believes that community involvement in the conservation efforts, such as could be provided through educational activities, will provide a self-policing system helpful in protecting the snakes and goldenrods, and their habitat. The long-term strategy will be to restrict access and vandalism into all nature areas, and to help the community and student body develop respect for the nature areas, including the snake and rare goldenrod.

## **8. Available Funding for Implementation**

SDSM estimates that the total cost of the development project and ecological restoration program will approximate \$45 million dollars. The cost to address Butler's Gartersnake issues, including protection, restoration and monitoring, but excluding actions that would be conducted regardless of the presence of the snake (e.g. re-seeding and silt fencing), is not expected to exceed \$75,000 during the first five years of this site construction phase, and approximately \$5,000 annually during years 5-10. After year ten, SDSM will budget \$2,000 per year for two annual monitoring visits and stewardship needs. SDSM commits the resources and agrees to protect, manage and restore Butler's Gartersnake habitats as provided under this conservation plan.

SDSM assumes complete responsibility for the implementation of this conservation plan. SDSM has chosen as their agent, Applied Ecological Services, Inc. to implement and oversee this conservation plan during the construction and restoration implementation phases 2003-2008. SDSM has also retained Casper Consulting for expert herpetological oversight for the project. SDSM shall provide WDNR, and copy Milwaukee County, with any changes in this assignment of responsibilities should changes be made in the future. The superintendent of the South Milwaukee School District shall be the principle contact for administrative questions on this conservation plan.

At this point in time the following party is responsible for implementation of this program, and shall be the contact:

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## **9. Timetable**

2002:	Begin construction
March 2003:	Install chain link and snake exclusion fencing
March 2003:	Obtain approval for snake baseline data collection plan
April 2003:	Establish snake cover object grid
May-July 2003:	Conduct snake baseline sampling
Sept 2003:	Conduct earthworm baseline sampling
January 2004:	Submit restoration and monitoring plans
April 2004:	Begin implementing restoration and monitoring plans

## **10. Figures**

Figure 1:	Project Site and Development Plan
Figure 2:	Northeast Preserve
Figure 3:	Proposed Fencing Location Map

Figure 1.

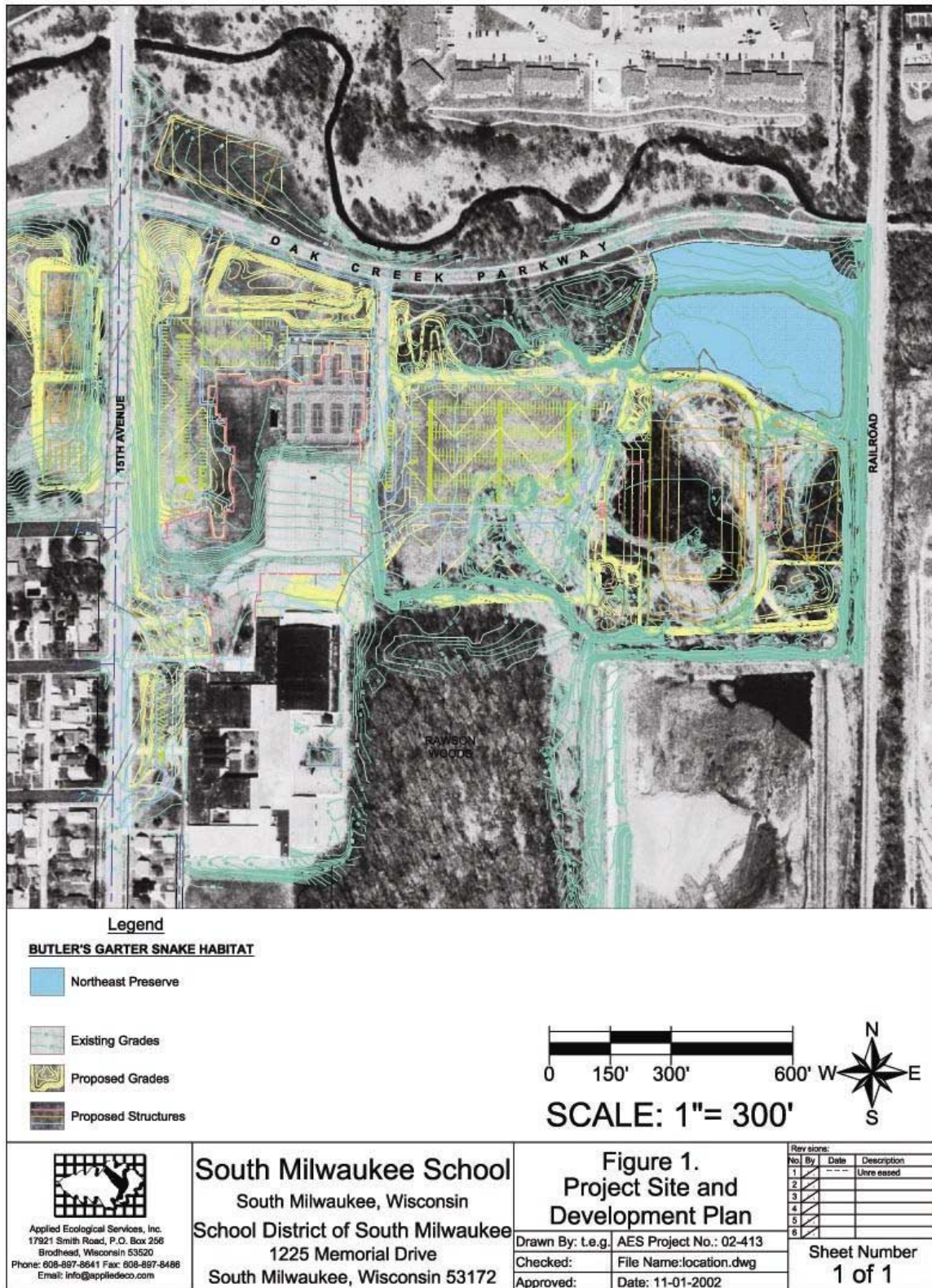




Figure 2.

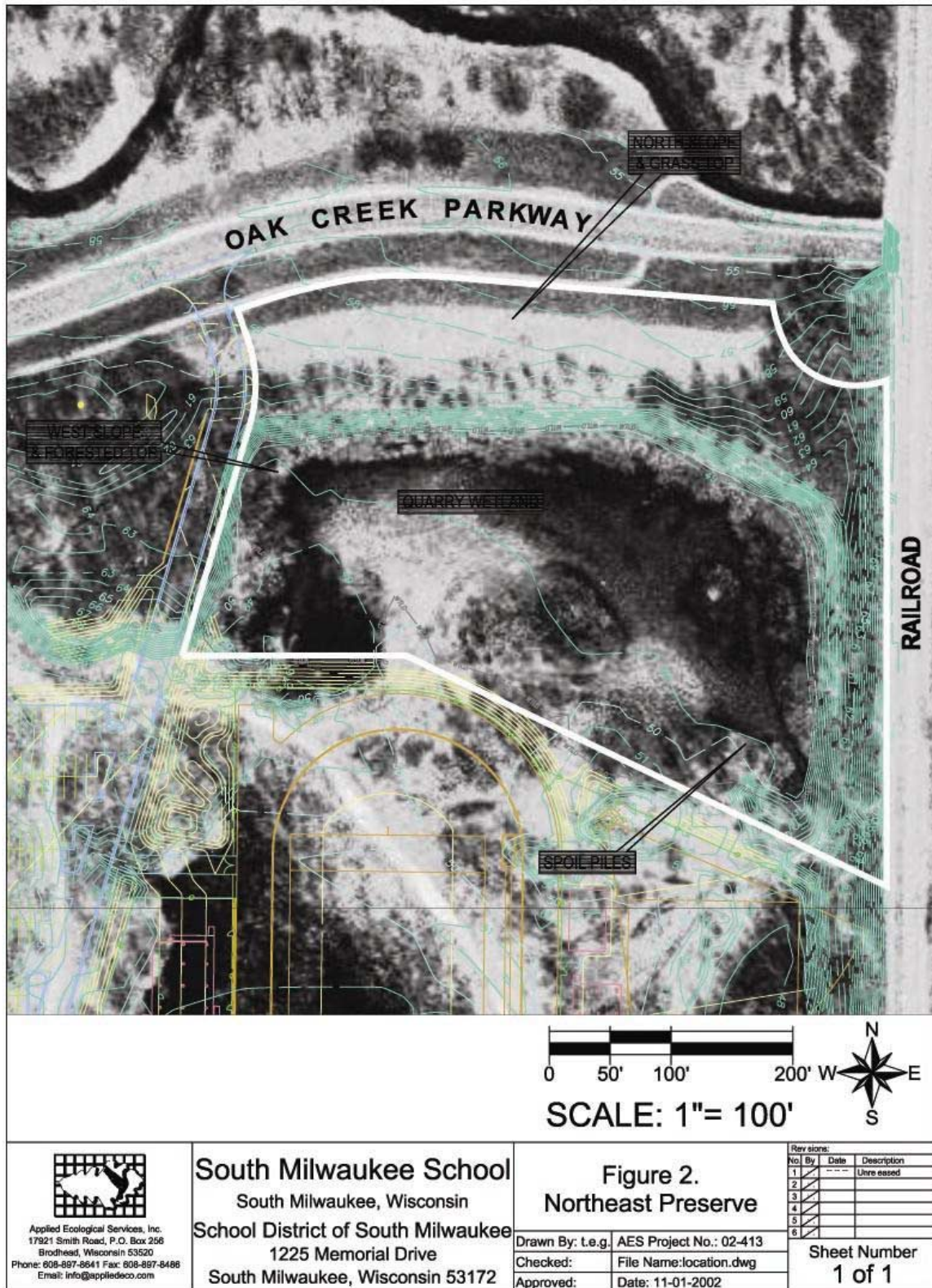




Figure 3.

